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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,675	02/18/2005	David M. Dean	AD6925USPCT	9558

7590 04/06/2007
Kevin S Dobson
E I du Pont de Nemours & Company
Legal Patents
Wilmington, DE 19898

EXAMINER

CHOI, LING SIU

ART UNIT	PAPER NUMBER
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1713

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/525,675

Applicant(s)

DEAN, DAVID M.

Examiner

Ling-Siu Choi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>03/30/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. This application is a 371 of PCT/US03/34735, filed 10/29/2003, which claims the benefit of U.S. Provisional Application No. 60/421,946, filed 10/29/2002.

Claim Analysis

2. Summary of claim 1:

A fluorine-containing ethylene copolymer composition comprising: the product of the reaction between	
	an ethylene/glycidyl (meth)acrylate copolymer
	a fluorine-containing carboxylic acid

Summary of claim 2:

A fluorine-containing ethylene copolymer composition comprising: the product of the reaction between	
	an ethylene/glycidyl (meth)acrylate copolymer
	a perfluorinated carboxylic acid
wherein the copolymer absorbs light in the region of from about 1750 cm ⁻¹ to about 1800 cm ⁻¹ of the infra red absorption spectrum	

Claim Rejections - 35 USC § 102

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3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 5-6, and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by DeRosa et al. (US 5,141,661).

DeRosa et al. disclose an ethylene/ α -olefin polymers grafted with perfluoro-substituted, ethylenically-unsaturated epoxides and then reacted with perfluoro-substituted nucleophiles, which is obtained by the steps comprising reacting (a) ethylene/ α -olefin polymer with (b) perfluoro-substituted, ethylenically-unsaturated epoxide to form an epoxy-containing, perfluoro-grafter polymer; and further reacting with (c) perfluoro-substituted nucleophile which reacts with the pendant epoxy group on the graft polymer to form additionally perfluoro-substituted, graft polymer; wherein the proportions of epoxide and nucleophile to polymer generally range from about 0.1 to about 10 weight percent (abstract; claim 1). DeRosa et al. further disclose that the epoxide can be perfluoroglycidyl (meth)acrylates and other perfluoro-substituted, ethylenically-unsaturated epoxides; the perfluoro-substituted nucleophile is represented by the general formula of $F_3C-[(OCF_2)_m-CF_2]_n-(CH_2)_p-Z$ wherein n is greater than 1; m is 0 or 1; p is from 0 to about 10; Z is preferably hydroxy, phosphate, carboxylic acid or thiocarboxylate. (col. 4, lines 16-49). DeRosa et al. furthermore disclose that the

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resulting graft polymer can be used as a lubricant additive (claim 1). In view of the composition is substantial identical to one of the present claims, the composition would possess the claimed property in light absorbance. Thus, the present claims are anticipated by the disclosure of DeRosa et al.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou (WO 02/072648 A2) in view of DeRosa et al. (US 5,141,661).

Chou discloses a fluorine containing ethylene copolymer obtained by the copolymerization of ethylene, fluorine-containing comonomer, and glycidyl methacrylate (claims 1, 2, and 8). Chou further disclose a melt-processable ethylenecopolymer blend comprising (A) the fluorine containing ethylene copolymer and a second thermoplastic polymer which can be polyethylene or polypropylene (claims 22-26). Chou furthermore disclose that the copolymer can be used in making film; and woven or non-woven fiber (page 11, lines 6-8). It is noted that the fluorine containing

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ethylene copolymer have a great influence on the surface energy or contact angle due to the presence of fluorine.

The difference between the present claims and the disclosure of Chou is the requirement of a copolymer obtained by reacting with the specific fluorine-containing carboxylic acid in the present claims.

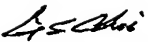
The disclosure of DeRosa et al. is adequately set forth in paragraph 4 and is incorporated herein by reference. DeRosa et al. also disclose that the perfluoro-substituted nucleophile is represented by the general formula of $F_3C-[(OCF_2)_m-CF_2]_n-(CH_2)_p-Z$ wherein n is greater than 1; m is 0 or 1; p is from 0 to about 10; Z is preferably hydroxy, phosphate, carboxylic acid or thiocarboxylate. (col. 4, lines 16-49). It is noted that the perfluoro-substituted nucleophile reacts with glycidyl methacrylate to form a grafted polymer. DeRosa et al. further disclose that the resulting grafted polymer can be used as a lubricant additive [*motivation*](claim 1). Thus, it would be obvious to one of ordinary skill in the art at the time the invention was made to further react the ethylene copolymer with the perfluoro-substituted nucleophile and thereby obtain the present claims.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

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If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.


LING-SUI CHOI
PRIMARY EXAMINER

March 28, 2007